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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/079,286

02/20/2002

Peter R. Jepson

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05/09/2008

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EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

05/09/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/079,286	<b>Applicant(s)</b> JEPSON ET AL.	
	<b>Examiner</b> LOIS ZHENG	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 26-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-30 and 31-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 March 2008 has been entered.

### ***Status of Claims***

2. Claim 26 is amended in view of applicant's amendment filed 10 March 2008. Claim 31 is withdrawn from consideration. New claims 32-38 are added. Therefore, claims 26-30 and 31-38 are currently under examination.

### ***Status of Previous Rejection***

3. The rejection of claims 26-30 under 35 U.S.C. 112, first paragraph, is withdrawn in view of applicant's claim amendment filed 10 March 2008.

4. The rejection of claims 26-30 under 35 U.S.C. 103(a) as obvious over Turner US 6,331,233 B1(Turner) is withdrawn in view of applicant's claim amendment filed 10 March 2008, because Turner teaches a uniform, predominately {111}<uvw> texture throughout the target thickness, which is excluded by the claim amendment.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26-30 and 32-38 are rejected under 35 U.S.C. 103(a) as obvious over Segal 6,238,494 B1(Segal).

Segal teaches an metallic sputtering target with a minimum grain size different of less than about  $\pm 3\%$  and a dispersion in orientation content ratio of textures of no more than about  $\pm 4\%$ (abstract, claim 1) at any location of the target. The sputtering target has an average grain size of 6 microns(claim 18). Segal also teaches that the sputtering targets can be coupons(col. 5 line 45) and the sputtering targets comprise 99.95% tantalum(col. 5 lines 52-55). Segal also teaches that the sputtering target can also be made of other metals such as niobium (col. 1 lines 61-66).

Regarding claims 26-30 and 32-38, the tantalum or niobium sputtering target as taught by Segal reads on the claimed refractory metal plate comprising a thickness, a center and an edge. In addition, it is examiner's position that the tantalum target of Segal would inherently have a mixture of grains with different crystallographic orientations including the claimed  $\{100\}$  and  $\{111\}$  crystallographic orientations. Since Segal teaches that the dispersion in texture orientation content ratio is no more than about  $\pm 4\%$  at any location of the target, one of ordinary skill in the art would have found it obvious that the tantalum or niobium sputtering target of Segal contains a constant mixture of grains with  $\{100\}$  and  $\{111\}$  crystallographic orientation, and the distribution of the texture orientation in the tantalum or niobium sputtering target of Segal varies by less than 30% both across any plane being orthogonal or diagonal to the thickness

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metal plate and across any thickness of the metal plate. Furthermore, Segal does not teach any predominant crystallographic orientations in the sputtering target. Therefore, the distribution of {100} and {111} textures orientation in the tantalum or niobium sputtering target of Segal is uniform through the thickness from the center of the plate to the edge of the plate without a predominately {100} and {111} orientation.

With respect to claimed purities as recited in claims 26, 28, 30, 34 and 36, Segal teaches that the sputtering target comprises 99.95% tantalum or niobium, which is very close to the claimed purity of 99.99% and 99.999%. Therefore, one of ordinary skill in the art would have found it obvious to use claimed 99.99% or 99.999% tantalum or niobium metal in forming the target of Segal with expected success since 99.95 and 99.99% tantalum are both high purity tantalum having similar properties and behavior under same processing conditions. It is always desirable to use higher purity material to achieve optimum sputtering target.

Furthermore, Segal further teaches that its sputtering target have an average grain size of 6 microns(claim 18), which meets the limitation of the claimed grain size of less than about 40 microns as recited in claims 26 and 38.

### ***Response to Arguments***

7. Applicant's arguments filed 10 March 2004 regarding Turner is moot in view of withdraw of previous rejection grounds.

8. Applicant's arguments filed 10 March 2004 regarding Segal have been fully considered but they are not persuasive.

In the remarks, applicant argues the figures of Segal shows titanium, not tantalum as claimed.

The examiner does not find applicant's argument persuasive since titanium represents one embodiment of Segal's invention. Segal also teaches that its invention also applies to other metals such as tantalum and niobium(col. 1 lines 61-66).

Applicant also argues that "a uniform distribution of 100 and 111 is not obtained when a tantalum ingot is subjected to the process described in Segal".

Applicant's argument is merely considered as conclusive statement without backing of factual evidence data demonstrating that the tantalum and niobium sputtering targets produced by the process of Segal does not possess the same uniform texture as claimed.

Applicant further argues that Segal does not teach the claimed uniform texture having no predominate {100} or {111} orientation.

The examiner does not find applicant's argument persuasive because Segal does not teach the formation of a dominating crystallographic orientation. Therefore, the examiner maintains that the rejection ground is proper absent persuasive factual evidence data demonstrating predominately {100} or {111} crystallographic orientation in the sputtering target of Segal.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

LLZ

<div>Application Number</div> <div></div>	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/079,286	JEPSON ET AL.	
	Examiner	Art Unit	
	LOIS ZHENG	1793	